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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES

Applicants	:	Thorsten OTT et al.
Serial No.	:	09/586,214
Filing Date	:	June 2, 2000
For	:	METHOD AND DEVICE FOR CONTROLLING VEHICLE SPEED DURING DESCENT
Examiner	:	Olga HERNANDEZ
Art Unit	:	3661
Confirmation No.	:	8054

MS Appeal Brief-Patents
Commissioner for Patents
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APPELLANTS' APPEAL BRIEF
UNDER 37 C.F.R. § 1.192

S I R :

Applicants filed a Notice of Appeal dated February 28, 2003 (filed at the PTO on March 3, 2003) appealing from the Final Office Action dated September 20, 2002, in which claims 1, 2 and 8 of the above-identified application were finally rejected. This Brief is submitted by Applicants in support of their appeal.

I. REAL PARTY IN INTEREST

The above-identified Applicants and Robert Bosch GmbH of Stuttgart, Germany, are the real parties in interest.

II. RELATED APPEALS AND INTERFERENCES

No appeal or interference which will directly affect, or be directly affected by, or have a bearing on the Board's decision in the pending appeal is known to exist to the undersigned attorney or is believed by the undersigned attorney to be known to exist to Applicants.

III. STATUS OF CLAIMS

Claims 1-10 are pending in this application. Claims 3-7, 9 and 10 have been allowed. Applicants appealed from the final rejection of claims 1, 2 and 8 made in the final Office Action mailed by the Patent Office on September 20, 2002. Of the claims presently on appeal, claims 1 and 8 are independent, and claim 2 depends on claim 1. The claims on appeal are set forth in the Appendix submitted herewith.

IV. STATUS OF AMENDMENTS

Subsequent to the final Office Action mailed on September 20, 2002, Applicants filed a Rule 116 Amendment dated November 26, 2002, which amended claims 3 to 5, 9 and 10. In the Advisory Actions mailed on January 8, 2003 and February 13, 2003, the Examiner indicated that the Rule 116 Amendment will be entered and that claims 3-7, 9 and 10 are allowed.

V. SUMMARY OF THE INVENTION

The present invention relates to a method and a device for controlling a vehicle, in which the vehicle's speed is regulated, i.e., limited, if descent is detected. (P. 10, l. 2-3). In one embodiment of the present invention, descent detection is carried out based on the vehicle's actual acceleration and a calculated model acceleration of the vehicle, descent being detected if the rate of change of

the actual acceleration and the difference between the actual acceleration and model acceleration are positive. (P. 10, l. 2-6).

Figure 1 shows an overview block diagram of a control device 10 for controlling a vehicle. In the exemplary embodiment, this control device includes, among other things, a speed controller, i.e., speed limiter, an input circuit 12, at least one microcomputer 14 and an output circuit 16. (P. 2, l. 21-24). These elements are connected to one another via a communication system 18, which is used to exchange data. (P. 2, l. 24-25). A measuring device 38 for measuring the vehicle speed is connected via input lines 36 to input circuit 12, to which an operating element 42, which can be operated by the driver and which is used to activate and, if necessary, predefine the setpoint values for the speed controller, i.e., the speed limiter, is connected via an input line 40. (P. 2, l. 25 - p. 3, l. 2). Furthermore, measuring devices 26 to 30, which are used to measure further vehicle performance quantities that are evaluated within the scope of the functions of control device 10, are connected to input circuit 12 via further input lines 20 to 24. (P. 3, l. 2-5). In the case of an exemplary embodiment, these performance quantities are the wheel brake pressure, the engine torque, the gear ratios in the drive train, etc. (P. 3, l. 5-6).

As part of the speed control, the at least one microcomputer 14 in control device 10 influences the braking force on the vehicle's wheel brakes via at least one output line 44 and at least one control element 46, e.g., in a brake system having anti-lock brake/anti-slip regulation elements. (P. 3, l. 7-11). Furthermore, in an exemplary embodiment the power output of the vehicle's drive unit is influenced via the at least one output line 32 and at least one actuating device 34, e.g., an electronic engine control device. (P. 3, l. 11-13).

The vehicle's speed is determined, for example by evaluating wheel speed signals or by evaluating a vehicle speed sensor and, based on the difference between the setpoint speed and the actual speed, the wheel brakes are actuated so that the actual speed is kept at, i.e., limited to, the predefined setpoint speed. (P. 3, l. 20-23). Furthermore, in the case of an exemplary embodiment, the

vehicle's drive unit is influenced so that the vehicle's actual speed is increased to the setpoint speed if the vehicle is traveling too slowly and the brakes have been released. (P. 3, l. 24-26).

In order to activate the speed controller, a switch which can be operated by the driver and which puts the speed controller into the "standby" state is provided. (P. 3, l. 27-28). In addition, a descent detection system is provided for the purpose of activating the speed controller, provided the switch element has been turned on in advance, if the vehicle is actually traveling downhill. (P. 3, l. 28-30).

There are two methods for detecting descent, depending on the exemplary embodiment. According to the first method, a vehicle tilt sensor is used, whereby its signal unambiguously indicates the tilt position of the vehicle. (P. 4, l. 2-3). If the sensor signal that represents the vehicle's tilt exceeds a predefined threshold value indicating descent for the vehicle's current direction of travel (which can be determined from the transmission gear that has been engaged (reverse or forward) or from the suitable logic operations of sensor signals), the speed controller is activated, provided the switch element, which is designed as a switch or button depending on the exemplary embodiment, has been turned on. (P. 4, l. 3-8).

If no tilt sensor is provided, descent is determined from the vehicle's acceleration signals. (P. 4, l. 11). To accomplish this, the rate of change of acceleration, the offset acceleration, which is caused by, among other things, the change in vehicle position, and, if necessary, the wheel brake pressure are analyzed. (P. 4, l. 11-14).

If the rate of change of acceleration is positive without the accelerator having been depressed, this indicates descent. (P. 4, l. 29-30). Thus, if the rate of change of acceleration is positive and the offset value is positive without the accelerator having been depressed, the system concludes that the vehicle is traveling downhill. (P. 4, l. 30 - p. 5, l. 2). All other signal combinations indicate

that the vehicle is traveling uphill or horizontally. (P. 5, l. 2-3). If descent is detected, the controller is activated; if ascent or horizontal travel is detected, the speed controller is deactivated so as to prevent any undesired braking. (P. 5, l. 9-10).

VI. ISSUE FOR REVIEW

The following issue is presented for review on appeal in this case:

A) Whether the subject matter of claims 1, 2 and 8 is unpatentable under 35 U.S.C. § 103(a) over U.S. Patent No. 5,794,735 to Sigl ("Sigl").

VII. GROUPING OF CLAIMS

For purposes of this appeal, all claims do not stand and fall together: claims 1, 2 and 8 will be argued individually.

VIII. ARGUMENTS

Claims 1, 2 and 8 are rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent 5,594,735 to Sigl ("Sigl"). Applicants respectfully submit that the rejection should be reversed for the following reasons.

To establish obviousness of a claim under 35 U.S.C. § 103(a) the Office must demonstrate that *all the claim limitations* are *taught or suggested* by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). In addition, to establish a *prima facie* case of obviousness, the Examiner must demonstrate that there is some suggestion or motivation to one of ordinary skill in the art to modify a reference, and there must be a reasonable expectation of success. See In re Vaeck, 947 F.2d 488 (Fed. Cir. 1991). Furthermore, "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

The rejection of independent claim 1 should be withdrawn because Sigl does not teach or suggest all the claim limitations of claim 1. Claim 1 recites "[a] method for controlling a vehicle comprising . . . ***detecting*** *whether the vehicle is traveling on a descent.*" (Emphasis added). Applicants respectfully submit that

the claimed term "detecting" necessarily involves affirmative **monitoring** and **recognition** of an occurrence of a condition, **not merely the occurrence of a condition**. In contrast to the claimed invention, the Sigl reference merely mentions ***an occurrence of a vehicle traveling on a descent***, but simply does not ***detect*** whether the vehicle is traveling on a descent. The section of Sigl relied upon by the Examiner as teaching **detection** of a descent actually indicates that "it is only in a few operating states, ***such as*** **when driving on downhill grades**, that the adjusted speed is exceeded." (Col. 3, lines 21 to 23; emphasis added). Accordingly, the Sigl reference merely lists a downhill grade as an *example* of a situation in which the adjusted speed is exceeded, i.e., an **occurrence**, but the Sigl reference simply does not teach or suggest *an affirmative recognition or detection* of a descent; instead, Sigl merely describes the effect of driving on downhill grades. Therefore, the Sigl reference cannot render obvious claim 1 of the present invention in which *a descent is detected, i.e., affirmatively recognized,* as part of the method.

In addition to the above-noted distinction, Sigl also fails to teach or suggest the claimed feature of "calculating at least one manipulated variable based on the actual speed and the setpoint speed *only when the vehicle is detected as traveling on the descent,*" as recited in claim 1. There is no teaching or suggestion in Sigl with respect to calculating a manipulated variable *only* when a descent is detected. In fact, as noted above, there is no provision in Sigl with respect to detecting a descent, so it is impossible for Sigl to suggest calculating a variable *only* when a descent is detected. Therefore, Sigl can not teach or suggest this feature of the present invention as recited in claim 1. Accordingly, for the foregoing reasons, it is respectfully submitted that Sigl cannot render obvious claim 1.

Additionally, it is respectfully submitted that there is no suggestion in the prior art to modify the Sigl reference by detecting a descent in the manner contemplated by claim 1. The Examiner asserted in the final Office Action that Sigl "performs some functions when the vehicle is traveling on a downhill. Therefore, Sigl detects when the vehicle is traveling on a descent. It can be read

between the lines." (Final Office Action, page 2). However, Sigl clearly does not indicate *detecting, i.e., recognizing,* a descent. The fact that some functions may be performed when the vehicle is traveling on a downhill doesn't indicate that there is a recognition of the vehicle traveling downhill. In this regard, measuring devices 20 through 22 in Sigl measure "throttle-valve position, engine temperature, engine rpm, driving speed, etc." (Col. 2, lines 63 to 64). Nowhere does Sigl indicate *a sensor for detecting a descent,* or a method for detecting a descent from the sensors provided. Rather, Sigl merely indicates driving on downhill grades as *an example* of an operating state in which the device according to Sigl *might* operate.

The Examiner also asserted in the final Office Action that "[t]he inability to maintain the set speed after the engine output is reduced is the same as detecting the vehicle traveling on a descent." (Final Office Action, page 2). Applicants respectfully assert that claimed **detection** requires affirmative recognition of a condition, not merely that the **condition occur.** Applicants further assert that the cited section of Sigl does not support the Examiner's conclusion. In fact, the cited section of Sigl does not even address the situation of not being able to maintain a set speed after reducing the engine output. Therefore, Sigl does not render obvious the subject matter of claim 1, in which a descent is *detected.* The conclusory reasoning of the Office Action suggesting the modification of the Sigl reference is insufficient to sustain an obviousness rejection, and therefore the § 103(a) rejection of claim 1 should be withdrawn.

Claim 2 depends from claim 1, and therefore claim 2 is allowable for at least the same reasons as claim 1 is allowable. Independent of this reason, claim 2 is further distinguishable from Sigl based on the limitation that "the at least one manipulated variable is calculated only when one of a switch and a button is activated." In contrast to the Examiner's assertion, nothing in Sigl suggests this feature.

With respect to claim 8, Sigl does not teach or suggest all the limitations, and therefore does not render obvious claim 8 under 35 U.S.C. § 103(a). Claim 8 recites:

> A device for controlling a vehicle, comprising . . . an output arrangement via which a manipulated variable that influences the actual speed of the vehicle is output . . . wherein the control device includes an enabling arrangement for enabling only the manipulated variable to be calculated and output, respectively, *if a descent of the vehicle has been detected*; and wherein the control device includes *an arrangement for detecting the descent of the vehicle.*

As noted above with respect to claim 1, Sigl does not teach or suggest the feature of "enabling only the manipulated variable to be calculated and output, respectively, *if a descent of the vehicle has been detected,*" as recited in claim 8. The sections of Sigl relied upon by the Examiner do not teach or suggest detecting a descent, and therefore Sigl cannot teach *calculating and outputting the manipulated variable only if a descent of the vehicle is detected.*

Independent of the above, claim 8 recites a specific structure for detecting a descent: "the control device includes an arrangement for detecting the descent of the vehicle." A control device which includes an arrangement for detecting the descent of the vehicle is not taught or suggested in the Sigl reference. Since the Sigl reference does not teach or suggest all of the limitations of claim 8, it is respectfully submitted that the Sigl reference does not render obvious the subject matter of claim 8. Accordingly, it is respectfully submitted that claim 8 is allowable.

IX. CONCLUSION

For the foregoing reasons, it is respectfully submitted that the final rejection of claims 1, 2 and 8 should be reversed.

Respectfully submitted,

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